220098

FLOOD INSURANCE STUDY

NEWARK

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CITY OF JENNINGS, LOUISIANA
JEFFERSON DAVIS PARISH

OCTOBER 15, 1980

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PUBLISHED SEPARATELY:

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Flood Insurance Rate Map

FLOOD INSURANCE STUDY
CITY OF JENNINGS, LOUISIANA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the City of Jennings, Jefferson Davis Parish, Louisiana, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study will be used to convert the City of Jennings to the regular program of flood insurance by the Federal Insurance Administration (FIA). Local and regional planners will use this study in their efforts to promote sound flood plain management.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than those on which these Federally-supported studies are based. These criteria take precedence over the minimum Federal criteria for purposes of regulating development in the flood plain, as set forth in the Code of Federal Regulations at 24 CFR, 1910.1 (d). In such cases, however, it shall be understood that the state (or other jurisdictional agency) shall be able to explain these requirements and criteria.

1.2 Authority and Acknowledgments

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by Pyburn & Odom, Inc., for the Federal Insurance Administration, under Contract No. H-4813. This study was completed in February 1980.

1.3 Coordination

Streams requiring detailed study were identified at a meeting attended by representatives of the study contractor, the FIA, and representatives of the City of Jennings in May 1978. Results of the hydrologic analyses were coordinated with the Louisiana Office of Public Works and the U. S. Soil Conservation Service (SCS).

On June 4, 1980, the results of the study were reviewed at the final meeting attended by representatives of the study contractor, FIA, and community officials. The study was acceptable to the community.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the City of Jennings, Jefferson Davis Parish, Louisiana. The area of study is shown on the Vicinity Map (Figure 1).

The limits of detailed and approximate studies in Jennings were determined by the FIA with community and study contractor consultation at the meeting in May 1978.

Two tributaries of Bayou Nezpique, designated as the Northeast Outfall Ditch and the Southeast Outfall Ditch were studied in detail. The Southeast Outfall Ditch was studied from the eastern corporate limits to the southern corporate limits. The Northeast Outfall Ditch was studied from the eastern corporate limits about 3,000 feet westward to a point approximately 600 feet east of the southeastern corner of the Greenwood Cemetery. The East Grand Marais Ditch which generally parallels the western corporate boundary was studied from the point where it crosses the western corporate limits northward to a point approximately 1,000 feet north of West Division Street, then eastward and northeastward to the flume of the Tiptop irrigation canal.

Approximate methods of analysis were used to study those areas having a low development potential or a minimal flood hazard. The areas studied by detailed methods were selected with priority given to all known flood hazard areas, and areas of projected development or proposed construction for the next five years, through 1985.

2.2 Community Description

The City of Jennings is located near the eastern boundary of Jefferson Davis Parish in south-central Louisiana. The community is situated appproximately 18 miles west of Crowley, Louisiana and 32 miles east of Lake Charles, Louisiana. The 1970 population was 11,783, a slight drop from the 1960 population of 11,887. Projections estimate the 1985 population will be between 12,000 and 14,000 (Reference 1).

Jennings is the parish seat of Jefferson Davis Parish and houses virtually all of the federal and parish offices. The economy of the city is mainly sustained by agriculture, oil and shipping interests. Chief industries in Jennings are the Evangeline Oil Refinery, the Zigler Shipyards, S.B.S. Shipyards and several major firms servicing the needs of the petroleum industry. Three new oil refineries are now located on the west bank of the Mermentau River about 3 miles from Jennings, and other industries are in the planning stage. While the bulk of the urban development is located above the flood plain on a north-south ridge between Bayou Nezpique and tributaries of Bayou Chene, there are low-lying areas to the east and west which are mostly reserved for drainage and agriculture (References 1 and 2).

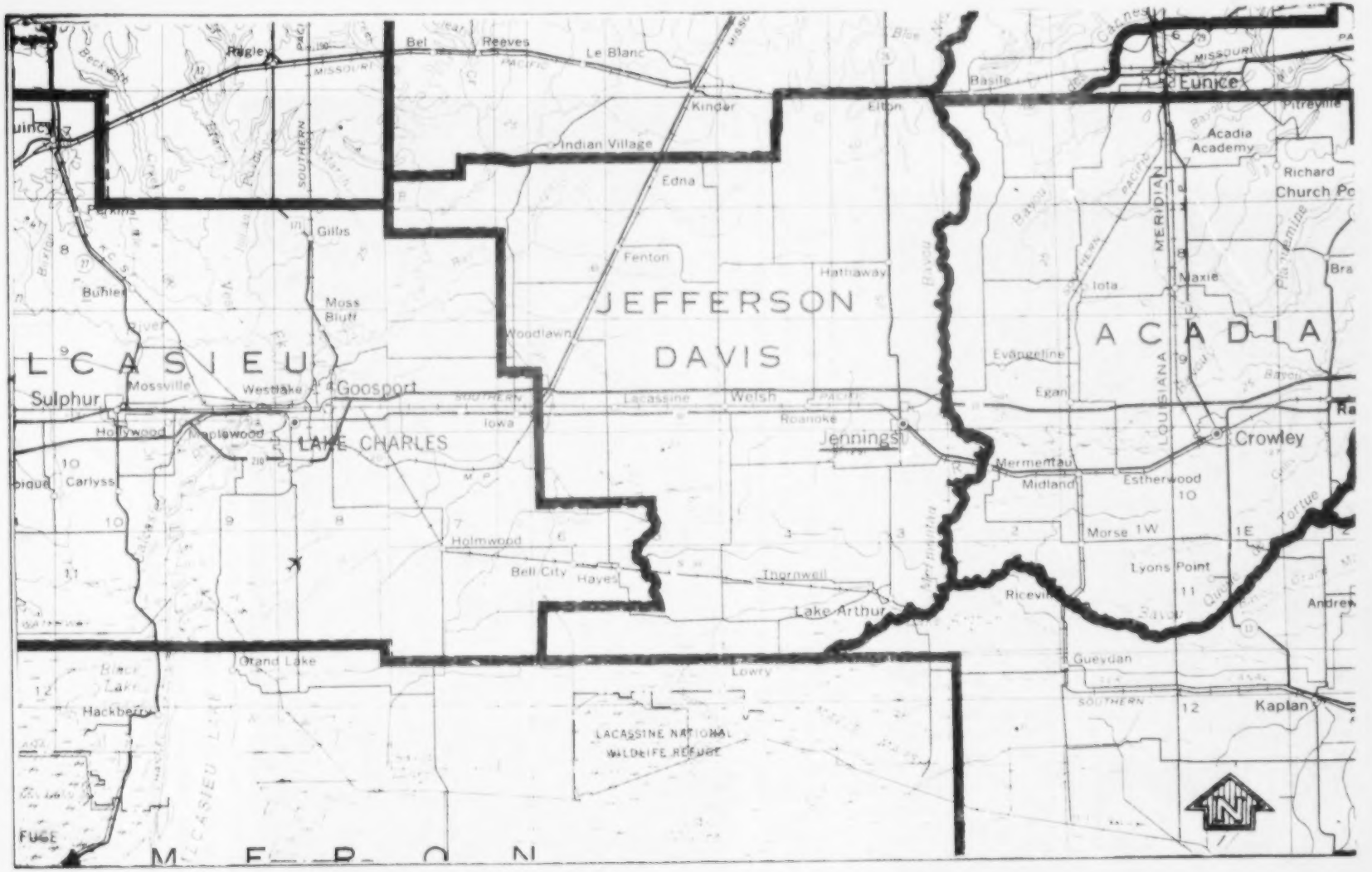


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

CITY OF JENNINGS, LA
(JEFFERSON DAVIS PARISH)

APPROXIMATE SCALE

8 0 8 16 24 MILES

VICINITY MAP

The annual temperature is about 69 degrees F, ranging from an average of 55 degrees F in the winter to an average of 82 degrees F in the summer. Annual average precipitation is 58 inches (Reference 3).

The study area has a relatively flat terrain. The relief ranges from approximately 27 feet National Geodetic Vertical Datum of 1929 (NGVD), in the center of the city to below 5 feet NGVD in the extreme northeastern and southeastern parts of the city.

Most of the city is covered with soils of the Crowley-Mowata Association. These are low strength nearly level to depressed silty soils with clayey subsoils. Soils of the Midland-Beaumont Association (level to depressed dark colored clayey soils) and Swamp Clayey soils are also found in Jennings (Reference 4).

2.3 Principal Flood Problems

While most of the urban development in the City of Jennings lies above the level of damaging floods, low-lying areas at the extreme eastern and western boundaries of the city do experience occasional backwater flooding. Backwater flooding from Bayou Nezpique, a tributary of the Mermentau River, causes most of the flood problems on the eastern side of Jennings. On the west, backwater flooding from East Grand Marais Ditch and other tributaries of Bayou Chene may occasionally cause damage. The most severe flood known to have occurred at Jennings was in August 1940. This flood resulted from the extremely heavy rains of a tropical storm. The 1940 high water recorded on the Mermentau River at Mermentau, 3 miles southeast of Jennings, was 13.7 feet NGVD. In 1953 when the Mermentau River at Mermentau reached a stage of 12.8 feet NGVD and Jennings experienced an 8-inch rain, forty families were evacuated, according to newspaper accounts (Reference 5). Other floods have occurred in 1955, 1971, and 1977.

Figures 2 and 3 show the expected 100-year and 500-year flood elevations. Figure 4 is an aerial view of the 1940 flood in Jennings.

2.4 Flood Protection Measures

The East Grand Marais Ditch and other tributaries of Bayou Chene west of Jennings have been improved considerably by means of dredging. Flood protection in the area has thus been improved.

FIGURE 2: View of the Southeast Outfall Ditch with a footbridge and the U.S. Highway 90 bridge in the background. The 100-year flood would reach approximately 0.5 foot below the top of roadway at the stream centerline. The 500-year flood would be approximately even with the top of road at that point.

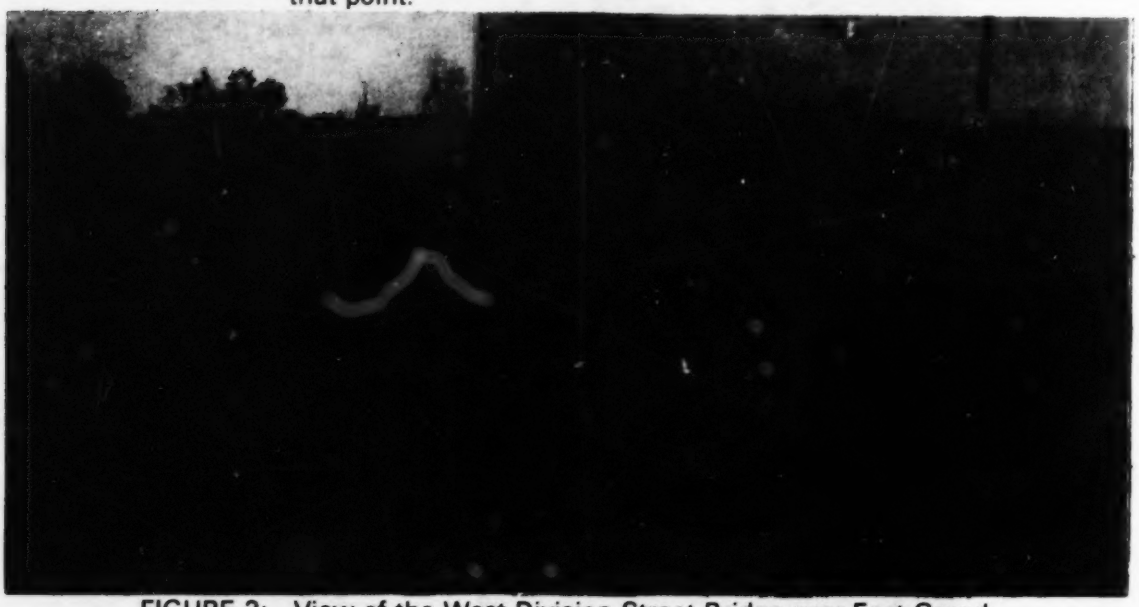


FIGURE 3: View of the West Division Street Bridge over East Grand Marais Ditch. The 100-year storm would reach approximately 1.5 feet below the low chord. The 500-year storm would reach approximately 0.5 foot below the low chord of the bridge.

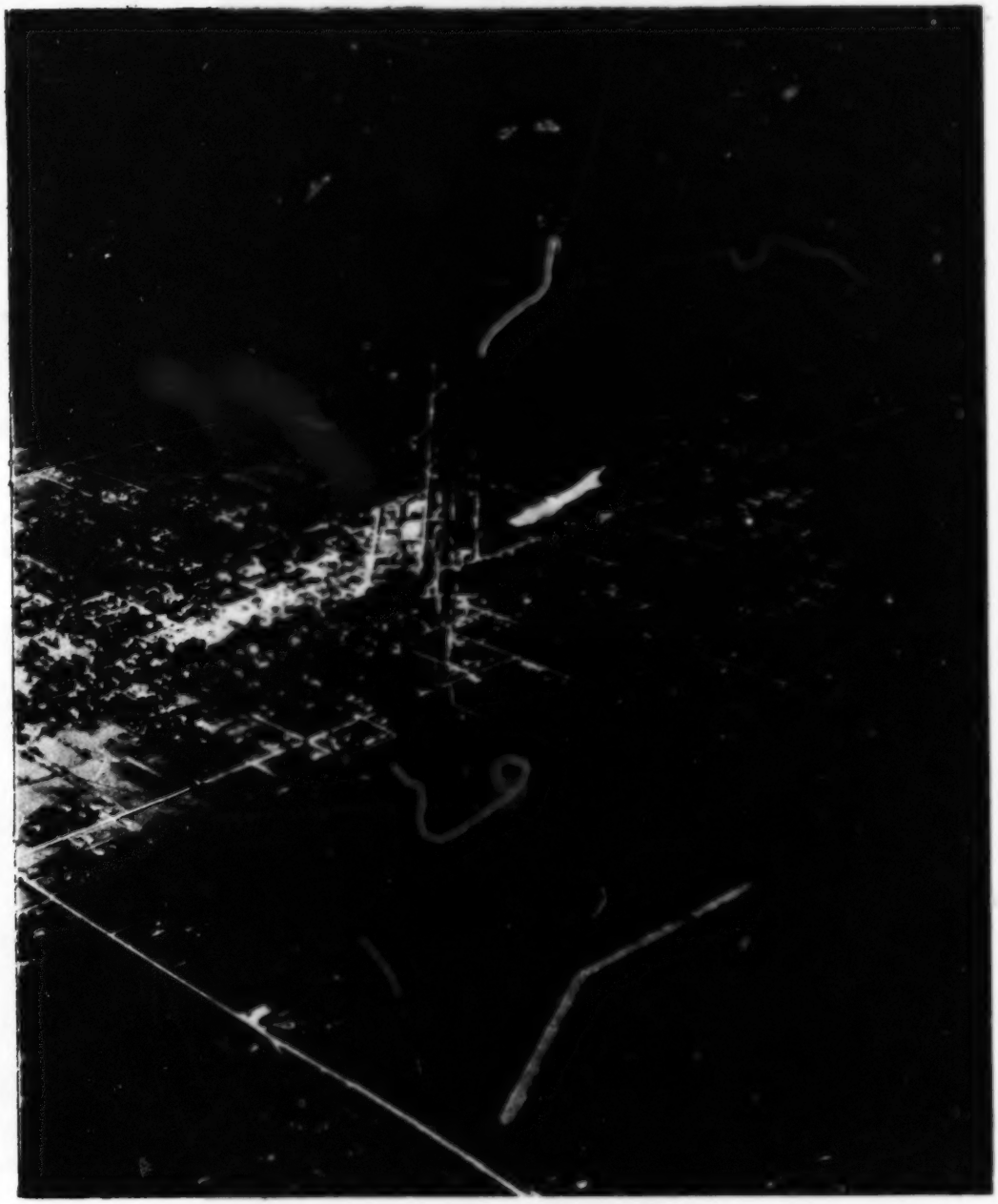


FIGURE 4: View of Jennings, Louisiana during the flood of August, 1940, looking southeast along the Southern Pacific Railroad. (Photo courtesy U.S. Army Corps of Engineers, New Orleans District).

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equalled or exceeded once on the average during any 10-, 50-, 100-, and 500-year period (recurrence intervals), have been selected as having special significance for flood plain management and for flood insurance premium rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equalled or exceeded during any year. Although the recurrence interval represents the long term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than one year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (one percent chance of annual occurrence) in any 50 year period is about 40 percent (four in 10), and for any 90 year period, the risk increases to about 60 percent (six in 10). The analyses reported here reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for floods of the selected recurrence intervals for East Grand Marais Ditch and the Northeast and Southeast Outfall Ditches. The 10-, 50-, and 100-year peak discharges for each stream were developed using the U. S. Geological Survey (USGS) regionalized method, and the peak discharges were adjusted for urbanization (References 6 and 7). The 500-year peak discharges were extrapolated from a log-probability plot of the discharge-frequency data.

The peak discharge-drainage area relationships for the selected recurrence intervals are presented in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
EAST GRAND MARAIS DITCH					
West Corporate Limits	4.09	1,040	1,570	1,745	2,125
Confluence above West Division Street	2.50	965	1,430	1,585	1,880
NORTHEAST OUTFALL DITCH					
East Corporate Limits	1.72	895	1,370	1,510	1,850
SOUTHEAST OUTFALL DITCH					
East Corporate Limits	2.26	900	1,385	1,530	1,875

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of the flooding sources studied in detail in the City of Jennings were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along each of the flood sources.

Water-surface profiles for the Southeast Outfall Ditch and East Grand Marais Ditch were developed using the HEC-2 computer step-backwater model (Reference 8). Profiles were developed for the 10-, 50-, 100-, and 500-year floods. Starting water-surface elevations for extrapolated downstream cross section of East Grand Marais Ditch were assumed to be Bayou Chene elevations, several miles downstream from the beginning of study. Water-surface profiles for the Northeast and Southeast Outfall Ditches were found to be controlled by Bayou Nezpique backwater.

Cross section data was obtained by field surveys. The data included natural ground elevations, bridge deck elevations, low beam and opening geometry, and culvert information. Roughness coefficients were estimated by field inspection using Chow's Open Channel Hydraulics (Reference 9) for guidance. The roughness coefficients ranged from 0.045 to 0.110 for the main channel and 0.040 to 0.100 for the overbanks. Those for the Southeast Outfall Ditch ranged from 0.050 to 0.070 for the main channel and 0.035 to 0.070 for the overbanks.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross section locations are also shown on the Flood Boundary and Floodway Map (Exhibit 3).

All elevations are referenced from the National Geodetic Vertical Datum of 1929 (NGVD), formerly referred to as Mean Sea Level Datum of 1929; elevation reference marks used in this study are shown and described on the maps.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound flood plain management programs. Therefore, each Flood Insurance Study includes a flood boundary map designed to assist communities in developing sound flood plain management measures.

4.1 Flood Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by the FIA as the base flood for purposes of flood plain management measures. The 500-year flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the boundaries of the 100- and the 500-year floods have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using topographic maps enlarged to a scale of 1 inch = 600 feet with a contour interval of 5 feet (Reference 10). In cases where the 100- and the 500-year flood boundaries are close together, only the 100-year boundary has been shown.

For streams studied by approximate methods, the boundary of the 100-year flood was developed from the existing Flood Hazard Boundary Map, data developed for detailed study areas, and field verification.

The boundaries of the 100- and 500-year floods are shown on the Flood Boundary and Floodway Map (Exhibit 3). Small areas within the flood boundaries may lie above the flood elevations, and therefore, may not be subject to flooding. Owing to limitations of the map scale and/or lack of detailed topographic data, such areas are not shown.

4.2 Floodways

Encroachment on flood plains, such as artificial fill, reduces the flood-carrying capacity, increases the flood heights of streams, and increases flood hazards in areas beyond the encroachment itself. One aspect of flood plain management involves balancing the economic gain from flood plain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of flood plain management. Under this concept, the area of the 100-year flood is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent flood plain areas that must be kept free of encroachment in order that the 100-year flood may be carried without substantial increases in flood heights. Minimum standards of the FIA limit such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this report are presented to local agencies as minimum standards that can be adopted or that can be used as a basis for additional studies.

The floodways presented in this study were computed on the basis of equal conveyance reduction from each side of the flood plain. The results of these computations were tabulated at selected cross sections for each stream segment for which a floodway was computed (Table 2).

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
East Grand Marais Ditch								
A	23,640	381[2]	1,586	1.1	13.2	13.2	14.2	1.0
B	24,875	532[2]	2,454	0.7	13.3	13.3	14.3	1.0
C	25,600	641[2]	3,156	0.6	13.3	13.3	14.3	1.0
D	26,585	390[2]	1,889	0.9	13.3	13.3	14.3	1.0
E	26,800	91[2]	1,011	1.7	13.3	13.3	14.3	1.0
F	27,460	453[2]	1,918	0.9	13.4	13.4	14.4	1.0
G	28,129	94[2]	951	1.8	13.5	13.5	14.5	1.0
H	28,820	303[2]	1,677	1.0	13.6	13.6	14.6	1.0
I	29,690	294	1,103	1.4	13.7	13.7	14.7	1.0
J	31,080	136	887	1.8	14.6	14.6	15.6	1.0
K	32,445	289	906	1.7	15.5	15.5	16.5	1.0
L	33,335	227	817	1.9	16.3	16.3	17.3	1.0
Northeast Outfall Ditch								
A	2,380	213	836	1.8	17.3	4.5[3]	5.5	1.0
B	3,540	65	326	4.6	17.3	5.2[3]	6.1	0.9
C	4,560	88	360	2.5	17.3	6.8[3]	7.7	0.9

[1] Feet above mouth
[2] This width extends beyond corporate limits.
[3] Water-surface elevation computed without consideration of backwater effects.

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

CITY OF JENNINGS, LA

(JEFFERSON DAVIS PARISH)

FLOODWAY DATA

EAST GRAND MARAIS DITCH-NORTHEAST OUTFALL DITCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S.)	REGULATORY (NGVD)	WITHOUT[2] FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
Southeast Outfall Ditch								
A	13,880	248	1,049	1.5	14.9	11.3[2]	12.2	0.9
B	14,728	669	2,277	0.7	14.9	11.6[2]	12.4	0.8
C	15,700	314	1,199	1.3	14.9	11.7[2]	12.5	0.8
D	16,028	222	760	2.0	14.9	11.8[2]	12.6	0.8
E	16,453	23	187	8.2	14.9	11.8[2]	12.7	0.9
F	16,549	33	196	7.8	14.9	12.7[2]	13.4	0.7
G	16,830	283	1,409	1.1	14.9	14.4[2]	14.8	0.4
H	17,555	357	1,658	0.9	14.9	14.5[2]	14.9	0.4
I	18,366	610	2,815	0.4	14.9	14.6[2]	15.1	0.5
J	19,283	548	1,232	0.6	14.9	14.7[2]	15.2	0.5
K	19,640	382	1,179	0.7	14.9	14.8[2]	15.3	0.5

[1] Feet above mouth
[2] Water-surface elevation computed without consideration of backwater effects.

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

CITY OF JENNINGS, LA

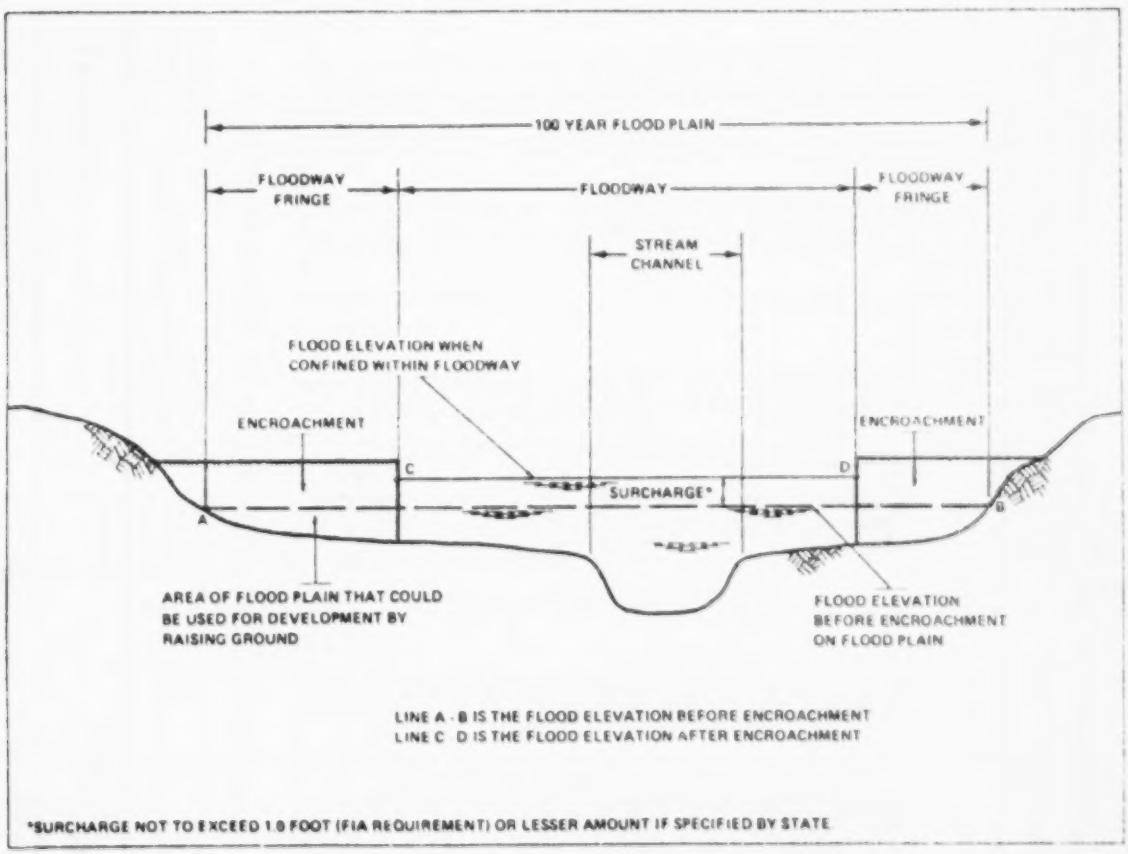
(JEFFERSON DAVIS PARISH)

FLOODWAY DATA

SOUTHEAST OUTFALL DITCH

As shown on the Flood Boundary and Floodway Map (Exhibit 3), the floodway widths were determined at cross sections; between cross sections, the boundaries were interpolated. In cases where the boundaries of the floodway and the 100-year flood are either close together or collinear, only the floodway boundary has been shown.

The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the flood plain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to flood plain development are shown in Figure 5.


100 YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE*
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE A - B IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE C D IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE NOT TO EXCEED 1.0 FOOT (FIA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE

FLOODWAY SCHEMATIC Figure 5

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, the FIA has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors (FHFs), and flood insurance zone designations for each significant flooding source affecting the City of Jennings.

5.1 Reach Determinations

Reaches are defined as lengths of watercourses having relatively the same flood hazard, based on the average weighted difference in water-surface elevations between the 10- and 100-year floods. This difference does not have a variation greater than that indicated in the following table for more than 20 percent of the reach.

Average Difference Between 10- and 100-Year Floods	Variation
Less than 2 feet	0.5 foot
2 to 7 feet	1.0 foot

Three reaches meeting the above criteria were required for the flooding sources of the City of Jennings. The location of this reach is shown on the Flood Profiles (Exhibit 1), and summarized in the Flood Insurance Zone Data Table (Table 3).

5.2 Flood Hazard Factors (FHFs)

The Flood Hazard Factor is used to correlate flood information with insurance rate tables. Correlations between property damages from floods and their assigned FHFs are used to set actuarial insurance premium rate tables based on FHFs from 005 to 200.

The FHF for a reach is the average weighted difference between the 10- and 100-year flood water-surface elevations expressed to the nearest one-half foot, and shown as a three-digit code. For example, if the difference between the water-surface elevations of the 10- and 100-year floods is 0.7 foot, the FHF is 005; if the difference is 1.4 feet, the FHF is 015; if the difference is 5.0 feet, the FHF is 050. When the difference between the 10- and 100-year flood water-surface elevations is greater than 10.0 feet, the accuracy for the FHF is to the nearest foot.

5.3 Flood Insurance Zones

After the determination of reaches and their respective FHFs, the entire incorporated area of the City of Jennings was divided into zones, each having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations.

Zone A:	Special Flood Hazard Areas inundated by the 100-year flood, determined by approximate methods; no base flood elevations shown or FHFs determined.
Zones A3, A5 & A6:	Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods; base flood elevations shown, and zones subdivided according to FHFs.
Zone B:	Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year flood by dike, levee, or other water control structure; areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; or areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.
Zone C:	Areas of minimal flooding.

Table 3, "Flood Insurance Zone Data," summarizes the flood elevation differences, FHFs, flood insurance zones, and base flood elevation for each flooding source studied in detail in the community.

5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for the City of Jennings is, for insurance purposes, the principal result of the Flood Insurance Study. This map (published separately) contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by the FIA.

6.0 OTHER STUDIES

Data developed for the Flood Insurance Studies of Acadia Parish and the Village of Mermentau were used in the Jennings study in the determination of water-surface elevations of Bayou Nezpique. The present study is in agreement with these studies.

The USGS Flood Prone Map of the area (Reference 11), is also in basic agreement with the present study.

FLOODING SOURCE	PANEL[1]	ELEVATION DIFFERENCE[2] BETWEEN 1.0% (100-YEAR) FLOOD AND			FHF	ZONE	BASE FLOOD ELEVATION[3]
		10% (10 YR.)	2% (50 YR.)	0.2% (500 YR.)			
East Grand Marais Ditch Reach 1	0001,0003	-1.46	-0.27	+0.53	015	A3	Varies
Northeast Outfall Ditch (Backwater from Bayou Nezpique)	0002	-3.00	-0.70	+1.20	030	A6	17
Southeast Outfall Ditch (Backwater from Bayou Nezpique)	0004	-2.70	-0.60	+0.70	025	A5	15

[1]FLOOD INSURANCE RATE MAP PANEL
[2]WEIGHTED AVERAGE
[3]ROUNDED TO NEAREST FOOT-SEE MAP

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

CITY OF JENNINGS, LA
(JEFFERSON DAVIS PARISH)

FLOOD INSURANCE ZONE DATA

EAST GRAND MARAIS DITCH-NORTHEAST OUTFALL DITCH-SOUTHEAST OUTFALL DITCH

The data presented here is authoritative for the purpose of the Flood Insurance program.

7.0 LOCATION OF DATA

Survey, hydrologic, hydraulic, and other pertinent data used in this study can be obtained by contacting the Insurance and Mitigation Division, Federal Emergency Management Agency, Federal Center, Denton, Texas 76201.

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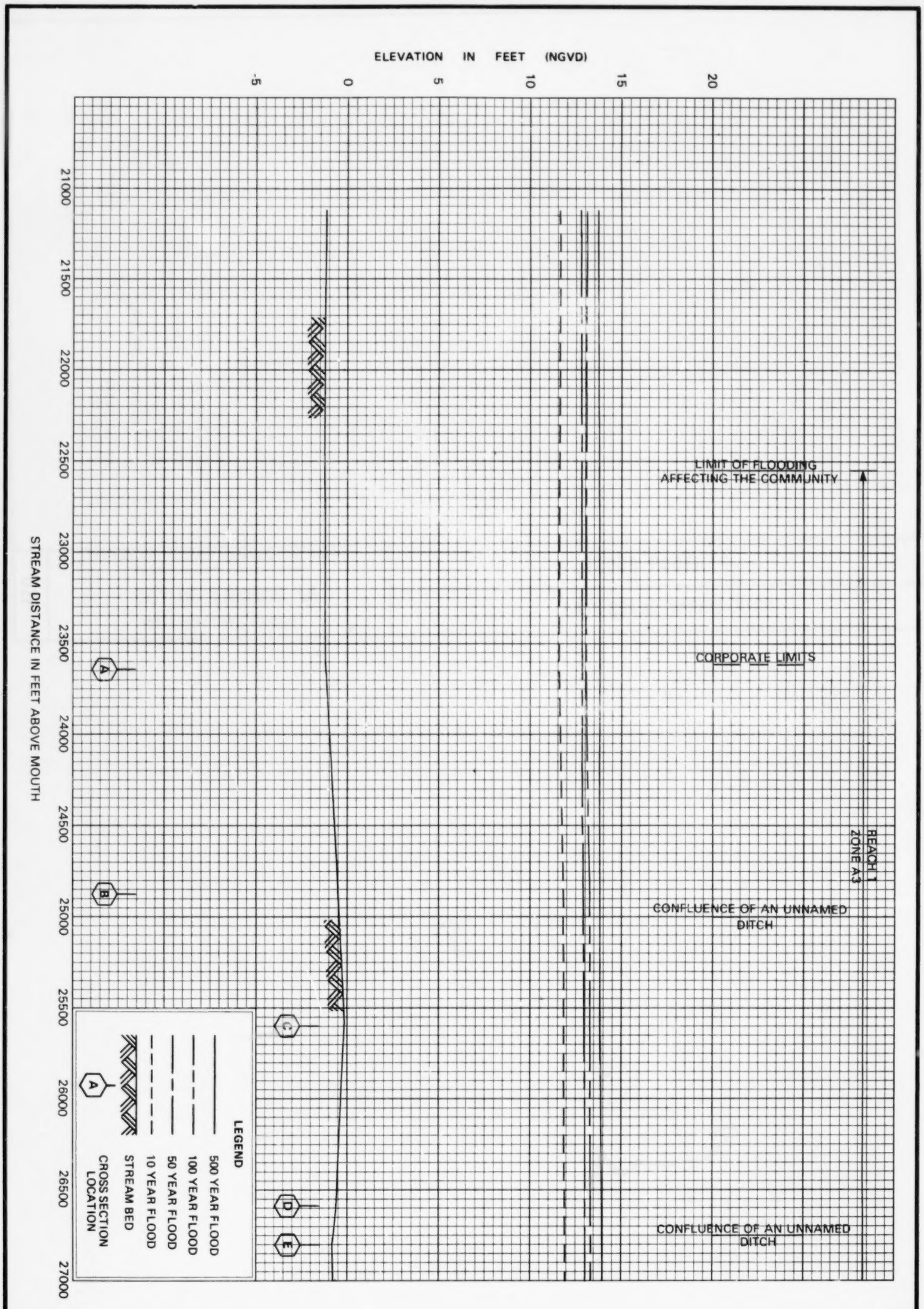


01P

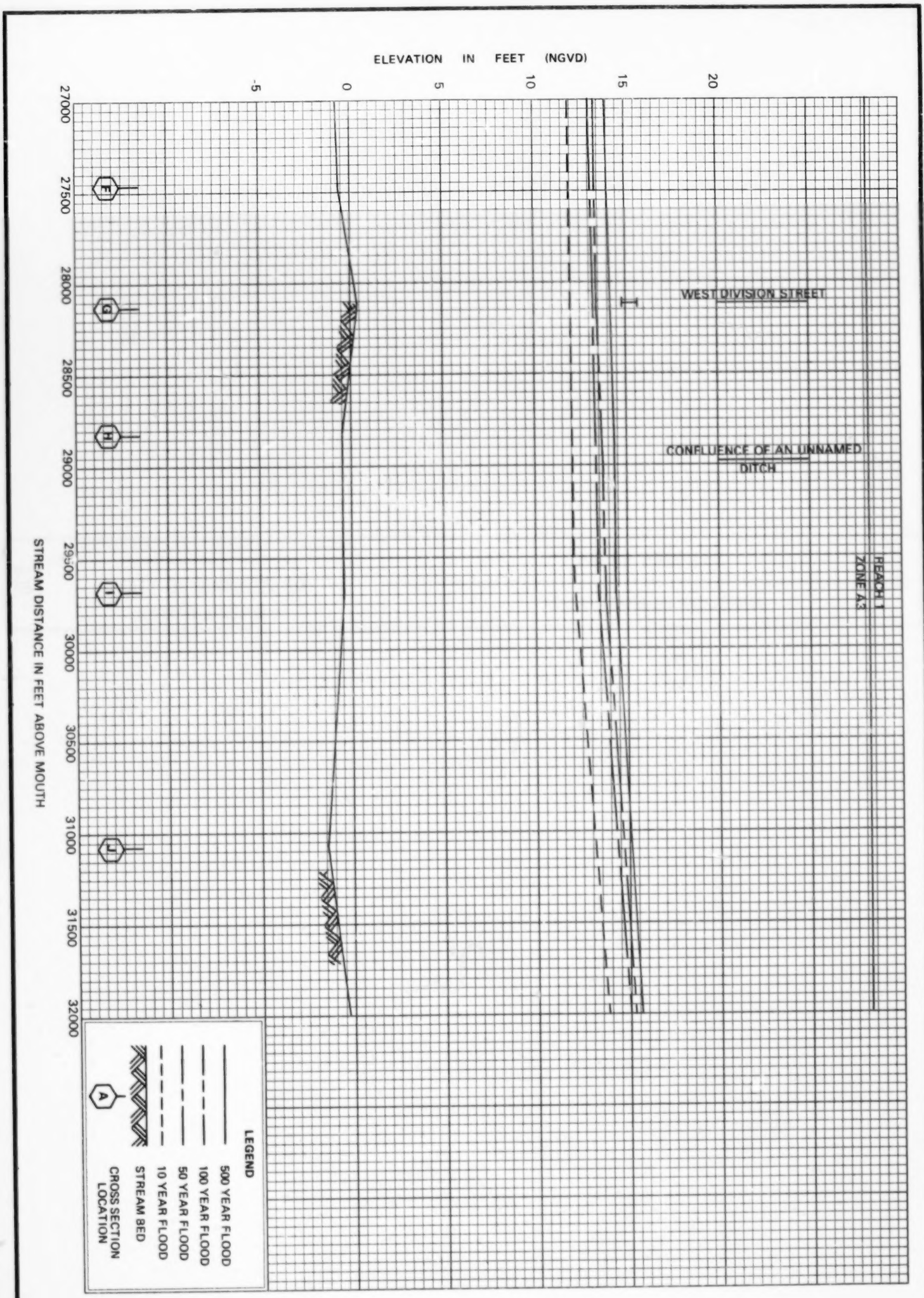
FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

CITY OF JENNINGS, LA

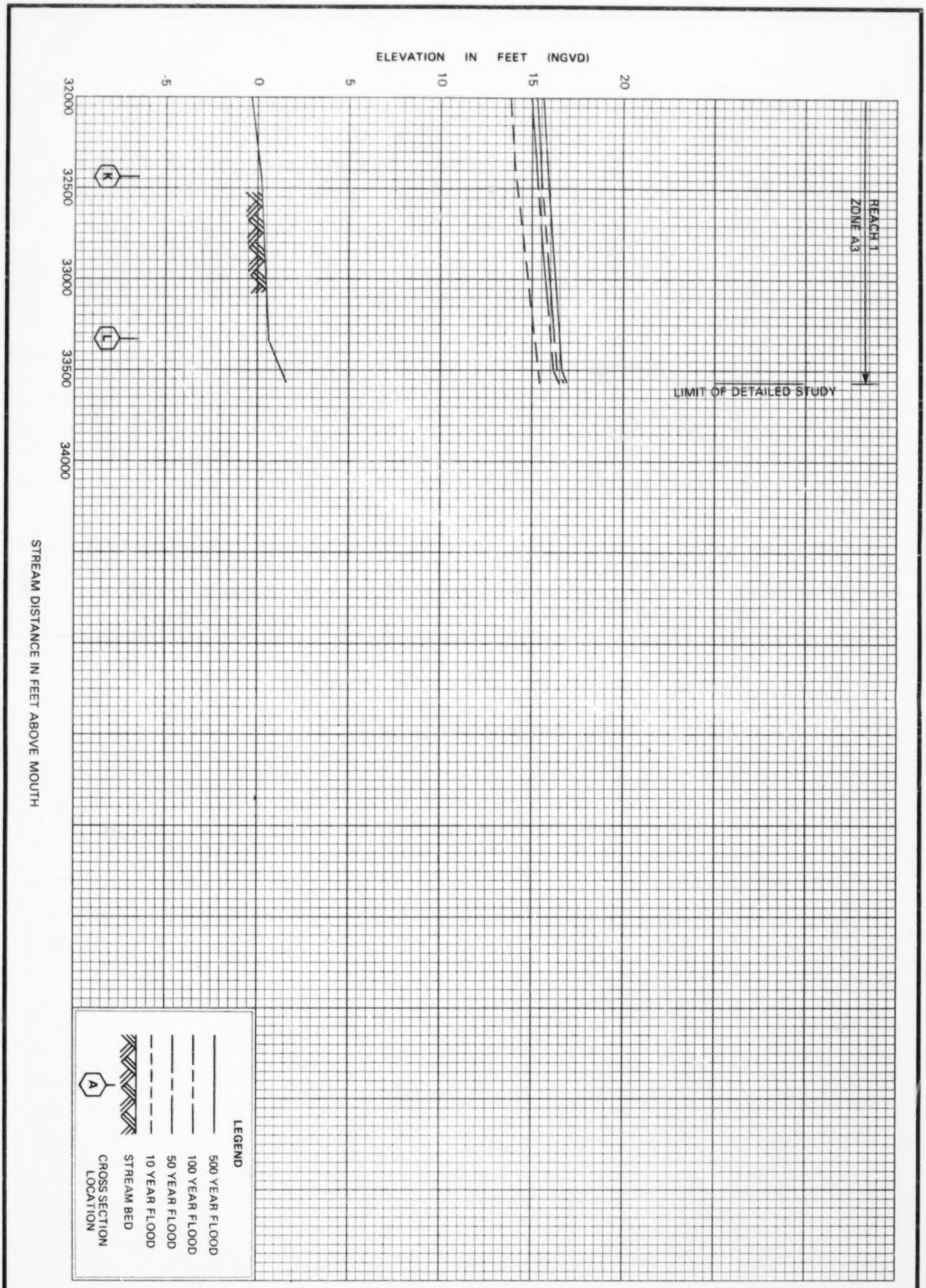
(JEFFERSON DAVIS PARISH)

FLOOD PROFILES

EAST GRAND MARAIS DITCH



02P	FEDERAL EMERGENCY MANAGEMENT AGENCY Federal Insurance Administration **CITY OF JENNINGS, LA** **(JEFFERSON DAVIS PARISH)**	**FLOOD PROFILES** **EAST GRAND MARAIS DITCH**



03P

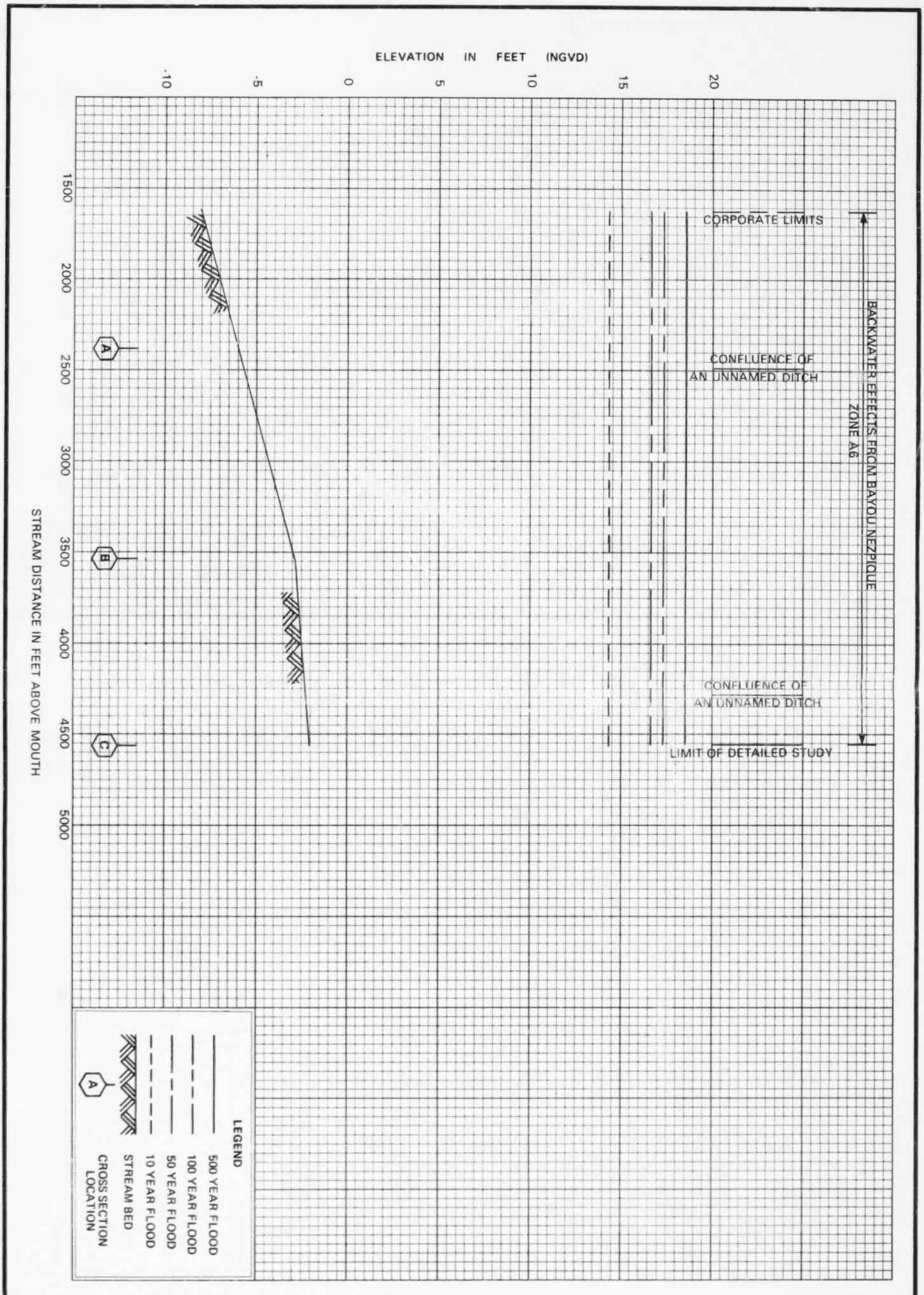
FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

CITY OF JENNINGS, LA

(JEFFERSON DAVIS PARISH)

FLOOD PROFILES

EAST GRAND MARAIS DITCH



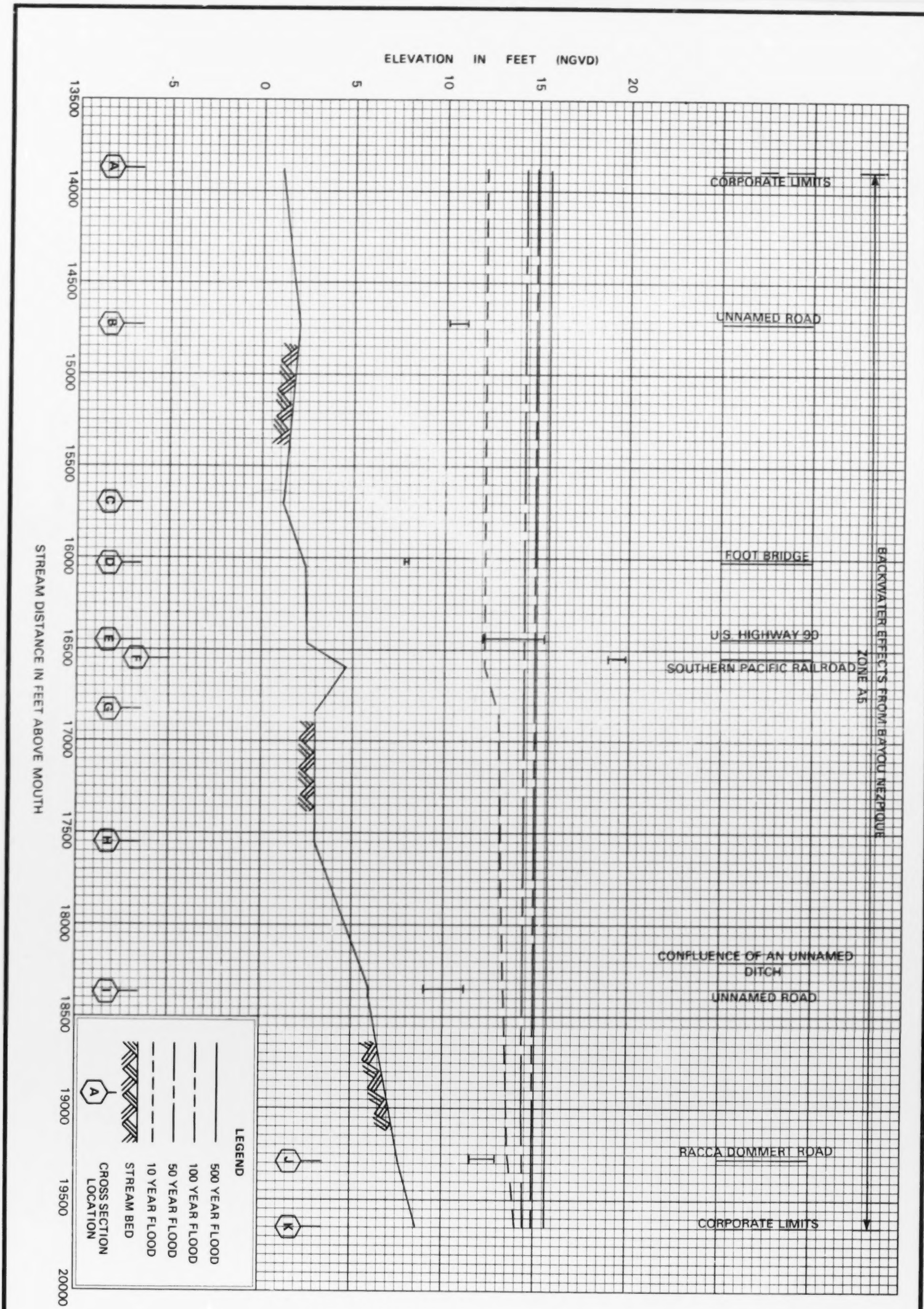
FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

CITY OF JENNINGS, LA
(JEFFERSON DAVIS PARISH)

FLOOD PROFILES

NORTHEAST OUTFALL DITCH

04P



05P

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

CITY OF JENNINGS, LA
(JEFFERSON DAVIS PARISH)

FLOOD PROFILES

SOUTHEAST OUTFALL DITCH